Given

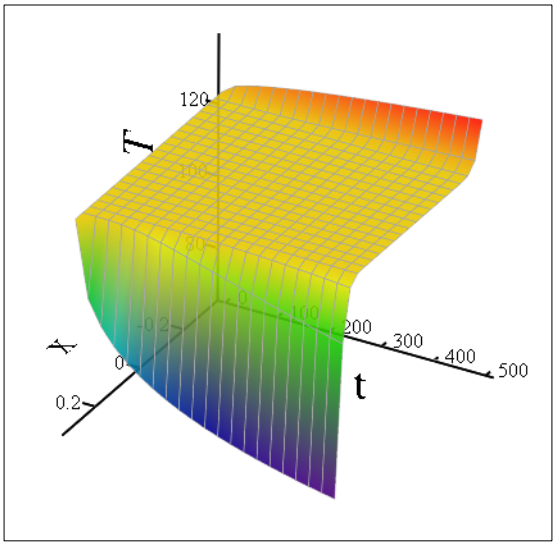
$$T_t(x,t) = 1.273\,10^{-6}\cdot T_{xx}(x,t)$$

$$T(x,0) = 125$$

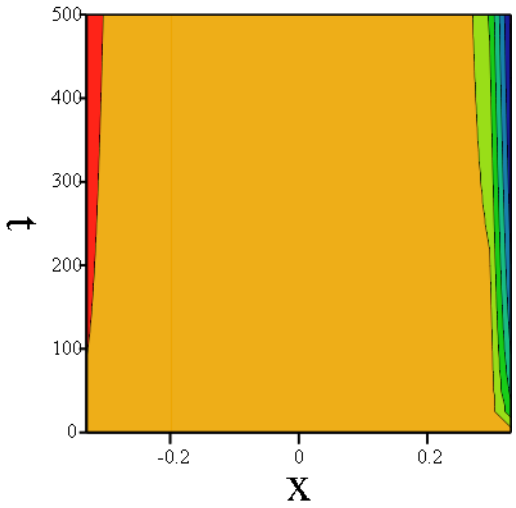
$$T_x(0.33,t) = \frac{-200\cdot(T(0.33,t) - 25)}{5}$$

$$T_x(-0.33,t) = \frac{-20\cdot(T(-0.33,t) - 25)}{5}$$

$$T := \text{Pdesolve}\left[T, x, \begin{pmatrix}-0.33\\0.33\end{pmatrix}, t, \begin{pmatrix}0\\500\end{pmatrix}, 1000, 1000\right]$$



T



T

$S := 11$ Number of different solutions to plot and save

$s := 0 .. S - 1$

$N := 1000$ Number of datapoint per curve

$n := 0 .. N - 1$

$t_s := s \cdot \frac{500}{S - 1}$ Vector of S t-elements
equally spaced from 0 to 500

$x_n := -0.33 + n \cdot \frac{0.66}{N - 1}$ Vector of N x-values
equally spaced from -0.33 to 0.33

$Dat_{n,s} := T(x_n, t_s)$ Matrix of T-values; each column for one value of t

$M := augment(x, Dat)$ Pack x-values and data in a matrix to write to a file

For reference purposes we can add column headers

$Header_0 := "x\t"$ $Header_{s+1} := t_s$

$Header := Header^T$

$M := stack(Header, M)$

$FileName := "TestData.xlsx"$

$OK := WRITEEXCEL(M, FileName)$ <----- DISABLED to avoid unwanted creation of file

Now we let Mathcad read in the data again. If The solveblock failed, no file should have been written and we read in an see the data of the last successful run.

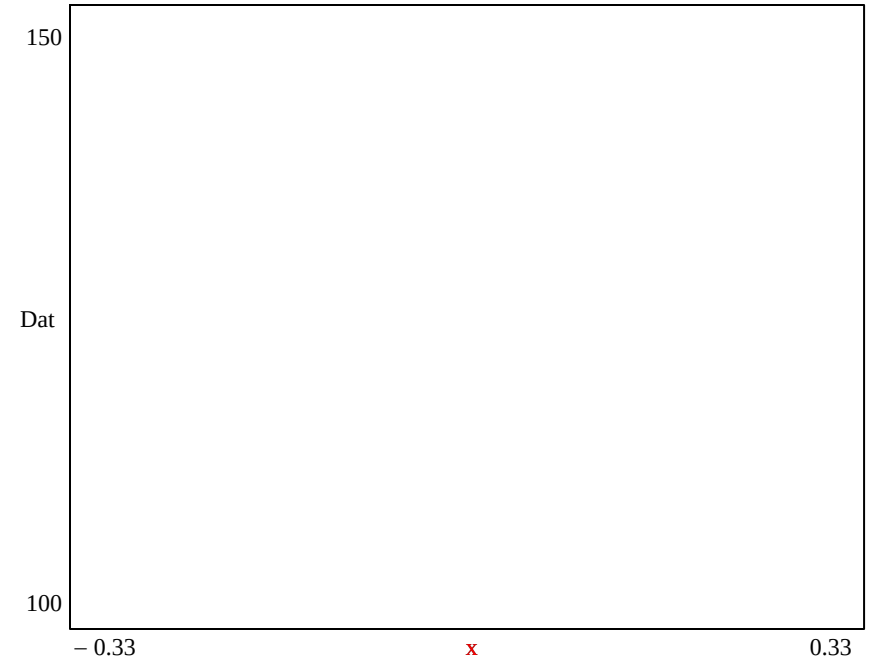
$M := READEXCEL(FileName)$

Lets exctract x-vector and data-matrix

$x := submatrix(M, 1, rows(M) - 1, 0, 0)$

$Dat := submatrix(M, 1, rows(M) - 1, 1, cols(M) - 1)$

All $S = 11$ graphs



selected graphs t: $t_0 = 0$ $t_1 = 50$ $t_{10} = 500$